INFLUENCE OF PARENTAL INVOLVEMENT IN FEEDING PROGRAM ON NUTRITIONAL STATUS OF CHILDREN AGED BELOW FIVE YEARS IN ISIOLO DISTRICT, ISIOLO COUNTY, KENYA.

BY

NG'AARI LEAH WANGUI

A RESEARCH PROJECT REPORT SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE AWARD OF MASTER OF ARTS DEGREE IN PROJECT PLANNING AND MANAGEMENT OF THE UNIVERSITY OF NAIROBI

2013

DECLARATION

This research report is my original work and has not been submitted for an award in any other University

Signed_____ Date _____

Ng'aari Leah Wangui

L50/71923/2011

This research report has been submitted with our approval as the University Supervisors.

Signed _____ Date _____

Dr. John M. Wanjohi

School of Physical Sciences

University of Nairobi

Signed_____ Date _____

Chandi John Rugendo

School of Continuing and Distance Education

University of Nairobi

DEDICATION

I wish to dedicate this report to my dad Moses Ng'aari, mom Virginiah Wanjiru and my sisters Shiku, Joyce and Ruth for their love, joy and support that they bring to my life. May God bless them abundantly.

ACKNOWLEDGEMENTS

First and foremost, I would like to acknowledge my supervisors, Dr. Wanjohi and Mr. Rugendo for their tireless efforts and assistance towards accomplishment of this report. Secondly I would like to recognize my Lecturers who have been of great assistance during my coursework. I would like to acknowledge Department of Extra-mural studies; University of Nairobi for the training and support that helped me a lot in the progress of my research. Finally I would also like to appreciate the Isiolo M.A group for their continued support and encouragement during the development of this report.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS AND ACRONYMS

ACC- Administration Committee on Coordination

APU-Anti Poaching Unit

ASAL-Arid and Semi-Arid Lands

CSB-Corn Soy Blend

FAO-Food Agriculture Organization

GAM-Global Acute Malnutrition

GFD-General Food Distribution

GOK-Government of Kenya

IMC-International Medical Corps

MDG-Millennium Development Goals

OTP- Outpatient Therapeutic Program

SAM-Severe Acute Malnutrition

SCN- Sub-Committee on Nutrition

SFP-Supplementary Feeding Program

SPSS-Statistical Package for the Social Sciences

TFP-Therapeutic Feeding Program

UNDP-United Nations Development Program

UNHCR-United Nations High Commissioner for Refugee

UNICEF- United Nations Children's Fund

WFP-World Food Program

WHO-World Health Organization

ABSTRACT

Health is recognized as a key social sector in the social pillar of Vision 2030. Nutritional status is a key indicator of the health outcomes of children below five years; hence any nutrition deficiency needs to be addressed as an emergency. Nutrition is under the Millennium Development Goal (MDG) that is meant to reduce child mortality by two thirds between 1990 and 2015. Objectives of the study included; to establish the influence of parent's attitude towards feeding program on nutritional status of children aged below five years in Isiolo district, to assess the influence of culture on nutritional status of children aged below five years in Isiolo district, to explore the influence of parent's nutritional knowledge on nutritional status of children aged below five years in Isiolo district and to establish the influence of food ration preparation on nutritional status of children aged below five years in Isiolo district. The study focused on obtaining information from parents of malnourished children who have been enrolled in the feeding programs. The research questions and objectives were set in order to aid in gathering information on the independent variable (parental involvement in the feeding program) and its influence on dependent variable (nutritional status of children). The study was carried out in Isiolo district, which is one of the 26 districts in Eastern Province and is bordered by eleven (11) districts namely: Marsabit and Moyale to the North, Wajir and Merti to the East and Garissa to the South East. Tana River, Mwingi, Nyambene and Meru Central to the South, Laikipia to the South West and Samburu to the West. A cross-sectional survey design was used to obtain information on parental involvement and nutritional status of the children aged below five years. The target population for this study was 206 malnourished children in Isiolo district based on data from the Ministry of Health for the month of March 2013; from which a sample size of 127 respondents (parents) were picked based on Krejcie and Morgan's (1970) table for determining sample size. The respondents were picked purposively from five health facilities namely; Isiolo District Hospital, Waso, Eremet, Catholic Mission and G.K Prison dispensaries. A pilot study to test for reliability and validity of the instrument was carried out in Merti district which has the same characteristics as Isiolo district whereby 23 respondents were interviewed. Structured interviews were used to collect data on demographic, socio-economic, health and health related information as well as knowledge, attitudes and practices. The information obtained was to be used by policy makers and the feeding program partners in decision making. Data was analyzed both quantitatively and qualitatively. This generated quantitative reports through tabulations, percentages, and measure of central tendency. The findings were presented using tables and frequency distributions. In addition, the researcher conducted a linear regression analysis. The studies found out that 37% of the respondents were dissatisfied with the fact that the feeding program was meant to improve the nutritional status of their children. The study also found out that 83.5% of those children enrolled in the feeding programs had been weaned with an unbalanced diet. The study also revealed that 81.9% of the respondents lacked knowledge about a balanced diet. Further the study revealed that 67.7% of the respondents reported to have been sharing the food ration among other household members. The study recommends that the respondents to be educated on importance of the feeding program, quality infant and young child practices and proper food ration preparation procedures. The study also suggests further studies on other strategies to curb malnutrition other than through feeding programs. Finally the study suggests further studies in the area of women empowerment and nutritional status of children aged below five years.

CHAPTER ONE
INTRODUCTION

1.1 Background of the Study

Health which encompasses nutrition is recognized as a key social sector, in the social pillar of Vision 2030, an indication of its significant role in economic development. The achievements of the growth goals and stated targets in Vision 2030 are to be realized through several flagship projects comprising the economic, social and political pillars of the Vision (GOK, 2007). Millennium Development Goals' (MDGs) focus on health underscores the importance of health in the path to economic prosperity of nations. The MDG focusing on nutrition is meant to reduce child mortality by two-thirds between 1990 and 2015 (UNDP, 2003).

In emergency situations where food security is not guaranteed, World Food Program (WFP) and United Nations High Commissioner for Refugees (UNHCR) try to ensure that the food needs of the population are met through the provision of an adequate general ration. However, in certain situations there may be a need to provide additional food for a period of time, to specific groups who are already malnourished and/or are at risk of becoming malnourished. These interventions have to be seen in the context of a general ration being distributed. The impact of Selective Feeding Programmes aimed at compensating for inadequate general rations has proven very limited and not cost-effective. Thus to be effective, the extra ration must be additional to, and not a substitute for, the general ration (FAO, 1993).

There are two mechanisms through which food may be provided; they are General Food Distribution and Selective Feeding Programmes. General Food Distribution (GFD) provides a standard general ration to the affected population with the aim to cover food and nutritional needs (WFP/UNHCR, 1997) while Supplementary Feeding Programmes (SFPs) provide nutritious food in addition to the general ration. SFP aim to rehabilitate malnourished persons or to prevent a deterioration of nutritional status of those most at-risk by meeting their additional needs, focusing particularly on young children, pregnant women and nursing mothers on the other hand, Therapeutic Feeding Programmes (TFPs) are to rehabilitate severely malnourished persons. The main aim is to reduce excess mortality. In most emergency situations, the majority of those with severe wasting are young children (UNHCR, 1992). There have, however, been cases where large numbers of adolescents and adults have

become wasted and in such situations, separate TFP facilities may be established for these groups. Isiolo District being one of the districts located in Arid and Semi-arid areas, populations receive emergency food rations through GFD and SFP programmes which is supplied by WFP.

Many factors influence nutritional status. It should therefore be kept in mind that interventions must be multi-sectoral and cover food, health, hygiene, sanitation and care. Selective Feeding Programmes need to be integrated into Community Health Programmes, which offer health and nutrition services like Safe Motherhood, immunizations, nutrition and health education and growth monitoring (Lusty and Diskett, 1984). In addition to nutritional and medical treatment, care is an essential part of rehabilitation. Care in nutrition refers to the practices of the care givers in the household which translates food security and health care into rehabilitation, growth and development. These practices include care for women, breast-feeding, infant feeding, psycho-social care, sanitation and hygiene practices, food processing and preparation, and home health practices (UNICEF, 1997). These issues can be addressed through Selective Feeding Programmes in the form of education, individual counseling, social activities and involvement of caretakers in the programme.

According to Laditan (1983), nutritional status is defined as the evident state of nutrition of an individual. A person is said to have a good nutritional status if he shows no evidence of malnutrition, whether open or latent. Nutrition is the aspect of science that interprets the relationship of food to the functioning of living organisms. It includes the uptake of food, liberation of energy, elimination of wastes and the biochemical synthesis that are essential for maintenance of normal growth and development. Malnutrition in children may take several different forms. Nutritional status in children is determined in surveys using measurements of a child's height, weight and age. Three indices of nutritional status are typically constructed from these measurements. These are weight-for-age, height-for-age, and weight-for-height. These measurements are compared against an international reference population (the United States population) to determine whether or not a child is malnourished. An underweight child is one having a low weight when compared with the reference population of the same age and sex. A child is considered stunted if it has a low height compared with children of the same age and sex. Similarly, wasting implies that a child has a low weight for their height, compared to the reference population (WHO, 1986).

Approximately 55% of the 11 million deaths among under-five children each year in the developing world are associated with malnutrition (WHO, 2005). Although national levels of Global Acute malnutrition is at 7%-8 % in Kenya, levels of acute malnutrition in Arid and Semi-Arid areas have consistently remained above the emergency threshold of 15%. Global chronic under nutrition in children is highly prevalent and remains a big challenge. 178 million and 112 million children aged less than five years (under-five children) are stunted (<-2 height-for-age z-scores) and underweight (<-2 weight-for-age z-scores) respectively in low-income countries (Lancet, 2008). The prevalence of stunting in children below five years in East Africa averages about 48 percent (ACC/SCN 2000), which is the highest in the world.

The improvement of childhood nutrition will assist in the goal to reduce child mortality because under nutrition is an underlying cause of an estimated more than a half of all deaths of under-five children (WHO, 2005). In Kenya, about 31% of children under five years old are stunted (too short for age) and about 20% are underweight. Rates of underweight and stunting are approximately 10% higher in rural areas than in urban areas (WHO, 2004). A survey done by International Medical Corps in 2011 in Isiolo district showed a Global Acute Malnutrition (GAM) rate of 15.7% (12.0 - 20.2 95% C.I.) (z-scores<-2 standard deviations and/or oedema) and a Severe Acute Malnutrition (SAM) rate of 2.6% (1.8-3.7C.I.). The overall prevalence of GAM denotes a "critical" situation, and above the emergency threshold according to WHO benchmarks. Therefore, this study aimed at assessing the influence of parental involvement in feeding programs on nutritional status of children aged below five years in Isiolo district.

1.2 Statement of the Problem

Isiolo is one of the districts located in ASAL areas in the upper Eastern region of Kenya. It is therefore classified as one of those areas that need attention as far as nutrition needs among children are concerned as there is heightened global policy attention to the problem of poor nutritional attainment among children in developing countries. The United Nations has included two nutrition-based indicators, defined as the prevalence of underweight children (under five years of age) and the proportion of population below minimum level of dietary energy consumption, to monitor progress towards its Millennium Development Goal (MDG) number one (eradication of extreme poverty and hunger). Nutritional status is strongly connected to health outcomes (Johanna, 2012). The most recent estimates on deaths

attributable to malnutrition indicate that about 20% of all deaths and 20% of health loss among children aged below five years living in low-income countries can be attributed to nutritional deficiency (WHO, 2005). In order to reduce malnutrition in Kenya, the government has partnered with Non-Governmental Organizations (NGOs) which supply food rations to the malnourished children and their entire households.

In Isiolo district there are two NGOs that are actively involved in nutrition programs that is World Food Program (WFP) and International Medical Corps (IMC) whose work is to deliver food rations to supplement the malnourished children and to monitor the nutrition programs at the health facilities respectively. Despite their efforts to curb malnutrition, Global Acute Malnutrition (GAM) rate stands at 15.7% (IMC, 2011) which is far much above the WHO benchmarks. The malnourished children are usually put on respective feeding programs based on the severity of their nutritional status. The rations that they are given to carry home are adequate to improve their nutritional status which is not the case. Also all the households of the malnourished children usually receive food rations monthly to prevent sharing of malnourished child's ration. This situation showed that there was a gap as far the effectiveness of feeding programs was concerned. Since children depend on their parents for feeding, this study sort to assess the influence of parental involvement in feeding programs on nutritional status of children aged below five years.

1.3 Purpose of the Study

The purpose of this study was to examine the influence of parental involvement in feeding program on nutritional status of children aged below five years in Isiolo district.

1.4 Objectives

The study was guided by the following objectives;

1. To establish the influence of parent's attitude towards feeding program on nutritional status of children aged below five years in Isiolo district.
2. To assess the influence of culture on nutritional status of children aged below five years in Isiolo district.
3. To explore the influence of parent's nutritional knowledge on nutritional status of children aged below five years in Isiolo district.
4. To establish the influence of food ration preparation on nutritional status of children aged below five years in Isiolo district.

1.5 Research Questions

The study was guided by the following research questions;

1. How does the parent's attitude towards feeding program influence nutritional status of children aged below five years in Isiolo district?
2. To what extent does culture influence nutritional status of children aged below five years in Isiolo district?
3. How does the parent's nutritional knowledge influence nutritional status of children aged below five years in Isiolo district?
4. How does the food ration preparation influence nutritional status of children aged below five years in Isiolo district?

1.6 Significance of the Study

The findings of the study were expected to give recommendations to the participants regarding nutritional knowledge and practices in relation to their children's nutritional status. The information was to be used to generate strategies to help increase nutrition awareness and education among parents. Policy makers were to use the information in reference to the causes and treatment of malnutrition. Further, bearing in mind that the major partners in the feeding program are the WFP and the Ministry of Health, the information was to be used so as to identify ways of improving the running of feeding programs through health education among the beneficiaries. The information obtained could also be used by WFP to determine whether the quantity of food ration per beneficiary needed any adjustment. This would in turn lower the prevalence of malnutrition associated with parental involvement in the feeding program of children aged below five years in Isiolo district.

1.7 Delimitation of the Study

The study was carried out in Isiolo district, Isiolo County. It involved only those parents with children aged below five years enrolled in the feeding programs. Isiolo district consists of 20 health facilities but the researcher concentrated only on the 15 health facilities that offer the feeding program services. Due to the nature of the feeding programs, the parents were interviewed during their visits to the health facilities to collect food ration. The researcher focused on four variables namely; parental attitude, culture, parents' nutritional knowledge and finally food ration preparation. There may have been other variables that influence nutritional status of children but the researcher limited herself to only the above named four variables.

1.8 Limitations of the Study

While conducting the study the researcher anticipated some factors that would have hindered achievement of objectives. First a cross-sectional survey design was used whereby everything was measured at one specific time and point; other factors that would have affected nutritional status of the children but were not evident during the time of the study were not considered. The research design is also prone to selection and measurements bias. Another factor was respondent's bias whereby the respondents may have given responses that were likely to favor the researcher's results. Also since the food rations were only distributed at the health facilities the researcher only concentrated on those parents who visited the health facilities; those parents with malnourished children and chose not to visit the health facility were not interviewed. Finally, the University had put specific time limit in writing and submission of report therefore the researcher did not explore all the areas under the study fully.

1.9 Assumptions of the Study

Assumptions in this study included; that the respondents were to answer question correctly and truthfully hence the respondents were assured of anonymity and confidentiality concerning the information that they will provide. Another assumption was that the respondents were ready and available to answer the questions therefore the researcher had notified the parents in the previous visit following the next food ration distribution.

1.10 Definition of Significant Terms

Culture – can be referred to those characteristics of a particular group of people, defined by language, religion, beliefs, taboos, cuisine, social habits, music and arts.

Feeding program- this refers to a program in which malnourished children and their households are enrolled in order to improve their health status. The program involves distributing food rations to the beneficiaries as they are given routine medication.

Food ration -refers to a 4 kilogram portion of Corn Soy Based flour given fortnightly for those children that are moderately malnourished or sachets of peanut-based paste given weekly for those children that are severely malnourished. The food ration is given to take home in order to improve their nutritional status.

Malnutrition- defined as the insufficient, excessive or imbalanced consumption of nutrients.

Nutritional knowledge- it refers to awareness on dietary information that one has and In this case we are concerned about the parents' nutritional knowledge. It is one of the factors that affect the nutritional conditions and habits of individuals, families, and societies. Lack of knowledge in nutrition leads to wrong dietary choice and, thereby, to the aggravation of nutritional problems in all forms.

Nutritional Status-condition of health of an individual as affected by intake and utilization of nutrients.

Parental attitude- refers to the heart felt interests or thoughts that may influence the intake of the food ration collected at the health facility. It may also be affected by indicators such as food preferences, food selection and eating styles.

1.11 Organization of the Study

The report was organized into five chapters. Chapter one was the introduction of the report and it involved background information to the study, research problem, objectives, research questions, significance of the study, limitations, delimitations and assumptions of the study. Chapter two was the literature review where by the relationship between the independent variable and dependent variable is explained at length using examples at global, regional, national and local perspective. Chapter three was the research methodology whereby the researcher explained the methods she used to obtain findings. Chapter four discussed the interpretation and presentation of the findings. Chapter five presented the discussion of key data findings, conclusion drawn from the findings highlighted, recommendation made and areas of further research indicated.

CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

This chapter presents the literature review on the subject matter. It summarized the information from other researchers who have carried out their research in the same field of study. The chapter explained the theoretical framework in which the study was based on, the four variables namely; parental attitude, culture, parental nutritional knowledge and food ration preparation and lastly the conceptual framework showed the association between independent variable and dependent variable.

2.2 Parental Attitude and Nutritional Status

Parents provide food environments for their children's early experiences with food and eating. Several studies have shown that a child's eating behaviour is strongly influenced by the family environment. The family eating environments include parents' own eating behaviours and child-feeding practices. Results of research on behavioural mediators of familial patterns indicate that parents' own eating behaviours and their parenting practices influence the development of children's eating behaviours. Parents create environments for children that may foster the development of healthy eating behaviours and weight, or that may promote overweight and aspects of disordered eating. Characteristics of these environments include socio-demographic factors, parental activity, parental eating styles (Fisher and Birch, 1999) and parents' child-feeding styles. Parents shape the development of children's eating behaviours, not only by the foods they make accessible to children, but also by their own eating styles (Birch *et al.*,1999), behaviour at mealtimes and child feeding practices (Fisher and Birch, 2000). Parent's child feeding practices are associated with children's eating behaviours, including specific eating styles, food selection and preferences, and the regulation of energy intake (Johnson and Birch, 1994).

In the experience context, during the early years, parents played a particularly important role. There are many variables within the family setting that can affect children's eating behaviour and, ultimately, their weight outcome. Included among these are parents' eating behaviours, foods made available to children, and child feeding strategies utilized. Parents play a pivotal role in the development of their child's food preferences and energy intake, with research indicating that certain child feeding practices, such as exerting excessive control over what and how much children eat, may contribute to childhood overweight (Faith *et al*., 2004). The

children behaviours (dietary intakes-eating style, weight, physical activity) are influenced from parent characteristics.

Christin (2011) however, highlighted the importance of the way in which parents and caregivers interact with children during mealtimes in setting the stage for children's relationship with food, which not only influences nutritional choices throughout the lifespan but also impacts food preferences, eating habits, and self-regulation of caloric intake. And, as recent research suggests, the way in which parents interact with children during feeding can also impact children's weight, even at a very early age.

A person's overall parenting style can also determine his or her attitude toward feeding a child. An authoritarian feeding style manifests as maintaining a high level of control over a child by restricting access to specific foods (often unhealthful foods), pressuring a child to eat, and forcing a child to consume food with little regard for his or her preferences. Parents with an indulgent/permissive feeding style allow their children total freedom with their food choices and the amount of food they consume, leading some to equate this type of feeding with "nutritional neglect" (Patrick, Nicklas, Hughes and Morales, 2005). Parents with an authoritative feeding style operate democratically, allowing children to exert some control in the process. For example, authoritative parents might control food choices (and their healthfulness) through the meals they offer and prepare but allow children to choose which foods from these meals they would like to consume and in what amount (Patrick *et al.*, 2005).

2.3 Culture and Nutritional Status

Diet and nutritional characteristics of a population are affected by the cultural perceptions about directly interacting factors such as taboos on certain foods. According to the findings of the study by Dindyal and Dindyal (2004), feeding behaviour and nutritional characteristics dictated upon by factor of a number of sociocultural. The authors reckoned that the different ethnic and cultural factors determine the perceptions and shared values on particular foods and feeding habits. Effectively, these sociocultural attribute of the human society directly influence the mothers' options on feeding their children. Shared values in an ethnic community for instance in the typical setting of Kenyan ASALs for instance affect the decisions in the acceptance of particular food types. Alternatively, sampling food varieties with an aim of making complete adjustment may be hindered by the communities' preferences for certain culturally right foods.

As an illustration, the Kenyan population has been blamed for overreliance on maize as the main source of carbohydrate (Brown, 1991). As a result of the deeply entrenched cultural preference for maize, other drought resistant foods are assumed and the communities are not flexible enough to accept them as substitutes for maize. Changing climatic conditions in the fertile lands in the country poses a threat to the production of maize, which creates a shortage of carbohydrate sources for many Kenyan communities. This as a national culture has also been challenged due to relatively higher nutritional value contained in traditional starch sources such as millet and sorghum that perform better in dry conditions. Investing heavily in order to develop maize strains that are drought resistance in Kenya confirms the inflexible culture among Kenyans. Elsewhere such as in Asia, plastic rice varieties that are enriched with proteins and minerals have been produced to increase nutritional value for rice among inflexible populations that traditionally consume rice as the main source of starch (Mariara, Mwabu and Ndenge, 2008).

Maternal options for food varieties on which to feed their children is therefore a construction of the cultural setting. As a tradition among the African communities, there are inconsistent perceptions of mothers feeding options during pregnancy as ancient cultural beliefs passed down several generations prove. In some instances, some communities may encourage consumption of certain foods by the pregnant women whereas others totally discourage similar or other food types. In cases where such beliefs are not favourable for the nutritional needs of the unborn baby, the health of the unborn baby as well as the mother may be affected (Cleland and Kaufmann, 1994). Encouraging wrong food consumption based on beliefs may expose the mother and the child to health dangers, for instance if the foods and beverages contain teratogenic substances such as alcohol, leading to malformations of the foetus. On the other hand, discouraging consumption of certain beneficial foods for the health of the mother and the foetus such as proteins and calcium deprive the two of important nutritional requirements.

Traditional economic practices and cultural heritage have a direct impact to a majority of parents in the ASALs when making decisions on the type of foods that they can feed their children on. To illustrate this, the communities living near Lake Turkana are exposed to fishing as an economic activity and this directly influences mothers' options for white meat as a source of protein. The availability of fish around the lake also makes the economic sense

of purchasing fish at a relatively lower price as opposed to communities far away from the lake. Alternatively, communities living in areas where the only economic heritage is livestock rearing may not find alternative source of proteins apart from the red meat from cattle, goats and sheep. Considering the quality of protein sources available to the mothers within these two economic and cultural settings, debate emerges on the nutritional status of children in these areas (Dindyal and Dindyal, 2004). Ethnic attachment to culture and tradition is closely related to the heritage of the communities living in the ASALs.

According to the findings of the study conducted by Dwyer (1988), certain religious grounds of abstaining from certain foods may affect the nutritional options available to mothers for purposes of feeding and bringing up healthy children. The vegetarian lifestyle which had a huge a following and strictly professed by religious groupings affects nutritional options that mothers have for their children. Appleby, Key and Rosell (2006) had a similar opinion to the effect that the influence of religion to the dietary and feeding options available for instance to vegetarians greatly reduces the chance of gaining beneficial nutritional supplies from certain foods. Whereas essential proteins are provided for by protein sources from plants, locking out nutritional benefits availed by animal products is not welcome by scientific nutritionists.

Certain communities in Kenya observe specific religious practices barring them from using certain types of foods completely, or temporarily. Al-Hourani and Atoum (2007) reckoned that although religious allowances are made to pregnant, lactating, aged or sick persons during fasting seasons in the Islamic and Christian fasting practices, personal decisions are left on the individuals on whether to refrain. If a pregnant woman decides to fast during the religious fasting practices, she makes such a decision on the account of religion, which is important therefore to the nutritional options available to mothers directly impacting on the nutritional status of children. These religious institutions act as centres for encouraging and influencing women to take supplements for iron and folic acid during pregnancy not only influences their own health but that of the unborn child (Cleland and Kaufmann, 1994). Certain religious positions on the consumption of particular products such as against the consumption of pork in Islam and against some animals among various Pentecostal sects among Christians hinder consumption of important protein sources.

Women practicing traditional religion are exposed to certain nutritional factors that can be associated with traditional beliefs on certain foods and feeding habits affecting women and

children. Modern religion practiced in ASALs in Kenya such as Islam and Christianity encourage and advocate for proper expert nutritional and clinical practices. Many of these religious centres offer and facilitate maternal and child services in the ASALs thereby increasing the possibility of proper nutritional advice reaching the appropriate audience. One of the most important of these services is the antenatal aspect that facilitates the establishment of the relevant nutritional foundation for the unborn child (Currie and Hyson, 1999). When compared to their counterparts practicing traditional religious practices with conflicting positions on maternal and child services and advice, women practicing modern religion are better positioned to make the right decisions in child nutrition.

2.4 Parent's Nutritional Knowledge and Nutritional Status

A mother is the principal provider of the primary care that her child needs during the first six years of its life. The type of care she provides depends to a large extent on her knowledge and understanding of some aspects of basic nutrition and health care. It is understandable that her educational status has been reported to influence her child-care practices (Caldwell, 1981).

Berger and Leigh (1989) raised an interesting observation regarding the nutritional awareness contrition that basic education directly makes to the population. Basic nutrition lessons taught at the basic education level make momentous contribution in the creation of awareness regarding interventions that parents need to raise healthy children. It is therefore obvious that mothers with basic education qualification are better equipped to handle nutritional issues concerning their children. Formal education systems have a mandatory introduction of basic scientific knowledge on nutrition that is expected to change the perceptions held about healthy feeding habits, safety in handling food, balanced diets and basic hygiene that complements nutritional health (Harmon, Oosterbeek and Walker, 2003; Cleland and Kaufmann, 1994).

In areas where education facilities may be inadequate to disseminate basic nutritional information to mothers regarding raising healthy children, informal education setting can be considered. Interaction of illiterate mothers with educated peers and other nutrition and health stakeholders contributes to change the outlook to healthy feeding (Berger and Leigh, 1989). As an illustration, the ASALs areas in Kenya are notorious for low education uptake by women due to several demographic factors. Among the factors that negatively affect educational uptake among the women in ASALs, include poor institutional distribution,

gender roles, economic difficulties and other environmental difficulties among many other challenges facing the regions.

The most important and influential nutritional lessons that mothers in ASALs require perhaps touch on the health of the baby during pregnancy. Whereas nutritional status of a child is important during the antenatal and postnatal stages, it is perhaps important to consider the importance of the health foundation that the antenatal to the general health of the child late into its life (Marmot and Wadsworth, 1997). Meeting nutritional requirements for the unborn baby makes a vital contribution to the general nutritional status of the baby during infancy and early childhood. During formal and informal education lessons, women learn how they can change the life chances of their unborn babies by feeding appropriately as Harmon and Walker (1995) note. Despite the fact that the prenatal and antenatal clinic instructions and prescriptions offered to pregnant and lactating mothers within the clinical setting also raises their awareness, prior knowledge without the circumstances is more important. Alternatively, scarcity of health facilities and related infrastructure in ASALs as mentioned above cannot substitute the need for dissemination of basic information on nutrition and infant health. Low birth weights, maternal anaemia and mortality can be associated with lack of economic ability to provide nutritional requirement for the infants (Currie and Hyson, 1999).

There is an inherently direct connection between income status of the mother and the education status (Harmon and Walker, 1995). In a marginalization outlook of the communities living in the ASALs, mothers are not in a position to acquire education to reach above average level that accords nutritional knowledge. Education setting directly affects the economic opportunities that the marginalized communities have, which further makes the case for the woman remotely achievable due to gender stratification and socio-cultural and socioeconomic constructions (Currie and Hyson, 1999). In view of the difficulties that general third world minority communities experience with regard to income distribution and education acquisition, studies can easily diagnose the cause of poor child nutritional status.

When compared with communities that have education uptake levels above average as per national statistics, ASALs are rank well behind any other regional setting (Harmon *et al*., 2003). Establishing the link that this phenomenon has on nutritional awareness and preparedness that mothers have for raising up their children, the ASALs can therefore be expected to perform poorly. The impact of low education uptake and completion on the

nutritional characteristics of the children in the affected areas is directly felt across the region. Perhaps increasing the educational uptake of the communities in the ASAL difficulties can assist in the establishment of economic stability and directly influence child nutritional recovery (Harmon and Walker, 1995).

On the contrary, some studies have found no relationship of mothers' nutrition knowledge on the nutritional status of children. On the basis of arbitrarily prepared knowledge and belief scores, one such study reported that the mothers of well-nourished children were as ignorant about essential facts regarding nutrition as those of undernourished children (Wali and Gambhir, 1975). Similarly, another study found that maternal comprehension of home based growth charts had no effect on children's growth (Grant and Stone, 1986).

2.5 Food Ration Preparation and Nutritional Status

Nutrients are the building blocks of the human body. They enter into the composition of the cells, regulate their functions and furnish the energy for their work. Nutrients, which are provided by foods, are divided into macronutrients (proteins, fats, carbohydrates) and micronutrients (vitamins and minerals). Nutrients may be destroyed or lost when foods are processed because of their sensitivity to heat, light, oxygen, pH of the solvent or a combination of these (Harris, 1988). Nutrient losses may occur between harvesting and distribution, during household and industrial handling as well as catering and during storage (Somogyi, 1990). Cooking is responsible for losses of vitamins and minerals in foods. However, the bioavailability of some minerals, for example iron, may be increased by cooking (Lee and Clydesdale, 1981). Knowledge of nutrient intake is essential to establish whether the food consumed by an individual covers his or her nutritional needs (Gibson, 1990; Battistini, Caselli, Bedogni and Gatt, 1992). Food processing has the potential to reduce the nutrient content of foods and therefore to negatively influence nutrient intake (Somogyi, 1990).

According to Johnson and Birch (1994), plant foods are the major staples of diets in developing countries, in which the consumption of animal-source foods is often low because of economic and/or religious concerns. However, such plant-based diets are often associated with micronutrient deficits, exacerbated in part by poor micronutrient bioavailability. Diet-related factors in plant foods that affect bioavailability include: the chemical form of the nutrient in food and/or nature of the food matrix; interactions between nutrients and other

organic components (e.g. phytate, polyphenols, dietary fibre, oxalic acid, protein, fat, ascorbic acid); pre-treatment of food as a result of processing and/or preparation practices.

In resource-poor communities, it has become clear that malnutrition is attributable not solely to insufficient amounts of food but also to the poor nutritional quality of the available food supply (Brownie, 1991; Golden, 1991), particularly among plant-based diets containing only small amounts of micronutrient-dense animal-source foods. The low bioavailability of nutrients, arising from the presence of anti-nutrients such as phytate, polyphenols, and oxalate, is another factor that limits the quality of predominantly plant-based diets (Gibson, 1994; West, Eilander and Lieshout, 2002). Given the heavy reliance of low-income populations on cereals as a food source, the negative effects of low mineral bioavailability on mineral status and subsequent health are potentially quite substantial. A variety of interventions that are appropriate for the rural poor need to be considered to overcome these limitations.

2.6 Theoretical Framework of the Study

In order to understand well the outcomes of nutritional status of children aged below five years, this study was based on the UNICEF's (1991) conceptual framework of malnutrition. According to this framework, malnutrition occurs when dietary intake is inadequate and health is unsatisfactory being the two immediate causes of malnutrition. In developing countries, infectious diseases, such as diarrheal diseases (DD) and acute respiratory diseases (ARI) are responsible for most nutrition-related health problems. Readily available food, appropriate health systems and a "healthy" environment are ineffective unless these resources are used effectively. As a result, the absence of proper care in households and communities is the third necessary element of the underlying causes of malnutrition.

Finally, this conceptual framework recognized that human and environmental resources, economic systems and political and ideological factors are basic causes that contribute to malnutrition. This model related the causal factors for under-nutrition with different social-organizational levels. The immediate causes affect individuals, the underlying causes relate to families, and the basic causes are related to the community and the nation. As a result, the more indirect are the causes, the wider the population whose nutritional status is affected.

Although mainly used in the context of under-nutrition in rural areas of developing countries, it is also applicable to over-nutrition in an urban context.

2.7 Conceptual Framework

From the literature review, the variables formed the conceptual framework in this study. According to Bogdan and Biklen (2003) a conceptual framework is a basic structure that consists of certain abstract blocks which represent the observational, the experiential and the analytical/ synthetical aspects of a process or system being conceived. It is a set of broad ideas and principles taken from relevant fields of enquiry and used to structure a subsequent presentation. The independent variables in this study were parental attitude towards feeding program, culture, parent's nutrition knowledge and food ration preparation, while the dependent variable is nutritional status. Food policy was the moderating variable whereas political influence was the intervening variable.

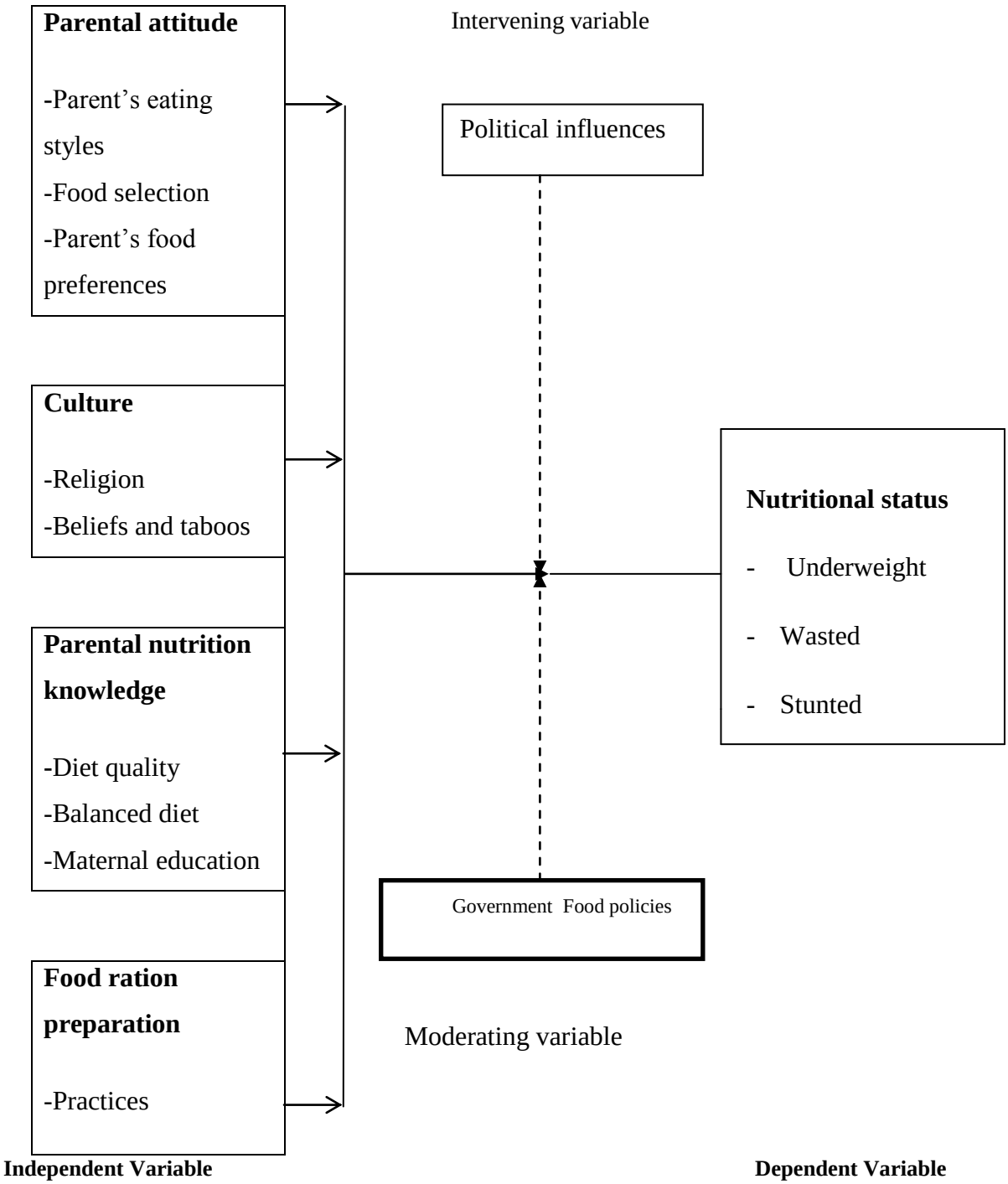

Figure 1: Conceptual Framework

2.8 Summary

Chapter two covered the variables of study at length including comparing different studies, their findings and conclusions. It also explained the theoretical framework under which the study was based on. Finally a relationship between the Independent variable (parental involvement) and dependent variable (nutritional status) was shown through a diagrammatic presentation.

CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes a detailed description of the selected research design. It describes the research strategy and methodology that is, what was done and how it was done. The chapter comprises of several subsections, which are presented in the following order.

3.2 Research Design

A cross-sectional survey design was carried out to assess the influence of parental involvement in feeding programs on nutritional status of children aged below five years in Isiolo district. The design was chosen because it allowed for exposure and outcome to be assessed at the same time among individuals (Mugenda and Mugenda, 2003). The research design enabled generalization of the findings to a larger population. The main focus of this study was quantitative data, however some qualitative approach was also used in order to gain a better understanding and possibly enable a better and more insightful interpretation of the results from the quantitative study. The information obtained was to be of great help to public health administrators in assessing the health or nutritional status and needs of a population.

3.3 Target Population

The target population for this study were parents with malnourished children aged below five years which was 206 as shown in Table 3.1.

Table 3.1: Target Population

Health facilities	Target Population	Percentage (%)
Isiolo Samburu	3	1.46
Catholic Mission	13	6.31
Waso	5	2.43
Eremet	12	5.83
G.K Prison	32	15.53
A P U	21	10.19
Isiolo District Hospital	31	15.05
Narrapu	5	2.43
Kipsing	16	7.77
Oldonyiro	6	2.91
Leparua	4	1.94
A C K	6	2.91
Ngaremara	9	4.37
Tupendane	32	15.53
Camp Garba	11	5.34
Total	206	100

Source: Ministry of Health, 2013

3.4 Sampling Procedure and Sample Size

Based on Krejcie and Morgan's (1970) table for determining sample size, for a given population of 206, a sample size of 127 respondents was appropriate to adequately represent a cross-section of the population at 95% confidence level. The researcher picked the respondents from five health facilities purposively as shown in the Table 3.2. The health facilities included Isiolo District Hospital, APU, G.K prison, Tupendane and Catholic Mission dispensaries. Since the malnourished children made a visit to the health facility accompanied by their parents either weekly or fortnightly to get their food ration, their parents were interviewed from the dispensaries.

Table 3.2: Sampling Frame

Health facilities	Target Population	Sample size	Percentage (%)
Isiolo District Hospital	31	31	24.4
APU Dispensary	21	21	16.5
Tupendane Dispensary	32	30	23.6
Catholic mission Dispensary	13	13	10.3
G. K Prison Dispensary	32	32	25.2
Total	129	127	100

3.5 Methods of Data Collection

Data was collected using structured interviews. This allowed for face to face interaction between the researcher and respondents. It also promoted social interaction between the interviewer and the interviewee. At the same time through interviews the researcher was able to penetrate the feelings of the respondent. The researcher visited the health facilities during food ration distribution whereby the parents accompanying the beneficiaries were interviewed. An interview guide was used in an effort to conserve time and money as well as to facilitate in easier analysis as they are in immediate usable form. Each interview guide was coded and only the researcher knew which person responded.

3.6 Research Instrument

Data was collected using interview guide which was administered to the parents accompanying their children to the health facility. The interview guide was designed comprising of two sections. The first part was designed to determine fundamental issues including the demographic characteristics of the respondents and the second part consisted of questions where the four variables were focused on. The interview gave an opportunity for in depth data collection and for clarification of the issues in the interview guide as well as a chance for probing (Kothari, 2004)

3.7 Pilot Study

A pilot study was carried out in Merti Health Center in Merti district, Isiolo County. This is because the district also receives the food rations from WFP for both the malnourished children and the general household food distribution. A total of 19 parents were interviewed.

3.8 Reliability of the Instrument

According to Mugenda and Mugenda (2003) reliability is a measure of the degree to which a research instruments consistent result or data after repeated trials. Reliability in research is influenced by random error. Random errors may arise from inaccurate coding, ambiguous instructions to the subject and bias. To assess reliability of the instruments, a test-retest technique was used. The instrument was prepared and administered to the participants. After two weeks the instrument was administered to the same participants. The responses to the first administration were compared to the responses of the second administration. The reliability of the responses from the two administrations was assessed using Pearson's correlation coefficient.

3.9 Validity of the Instrument

In designing an instrument that would yield content validity all domains of indicators which were found relevant to the concept being measured were included. The domains of indicators were listed down by District Nutrition Officer. But due to the inability to come up with all the possible indicators the researcher went further to sample the indicators. According to Mugenda and Mugenda (2003), sampling validity is employed so as to circumvent the problem associated with content validity. This is because it may be impossible to construct an instrument that comes up with all the possible items that might influence nutritional status and hence a representative sample of indicators from the domain of indicators of the concept was selected. Sampling validity was employed to measure the degree to which data collected using a particular instrument represented a specific domain or content of a particular concept.

3.10 Data Analysis

The collected data was organised to attach meaning applicable to the research questions and research objectives. Data for every variable were coded and analysed both qualitatively and quantitatively by using SPSS v 21.0 software. In qualitative analysis themes emerging from various responses were identified and each theme given a description. The findings were interpreted referring to theory, practice and experience. In quantitative analysis themes emerging from various responses will be identified and then the type of data identified.

Socio-demographic information of the respondents was analysed and presented using frequencies and percentages. Pearson's correlations were done to identify the strength and direction between two random variables. Regression was done to determine the exact kind of linear association that existed among variables and to help fit the best line. It was guided by the following equation;

$y= b_0 + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4$

Where;

y –was nutritional status

b_0 - was the constant (2.074)

X_1 - was parental attitude

X_2 - was culture

X_3 - was parental nutrition knowledge

X_4 - was food ration preparation

3.11Operationalization of Variables

Table 3.3: Operationalization of Variables

Objective	**Type of variable**	**Indicators**	**Measurement scale**	**Research instrument**	**Methods of data analysis**
To establish influence of parental attitude towards feeding program on nutritional status of children aged below five years in Isiolo district.	**Independent variable** 1.Parental attitude	-Food preferences -Food selection	Ordinal scale Ordinal scale	Interviews	Inferential -correlation
To assess influence of culture on nutritional status of children aged below five years in Isiolo district.	2.Culture	-Religion -Beliefs and taboos	Nominal scale Nominal scale	Interviews	Descriptive -mean -standard deviation
To explore the influence of parent's nutritional knowledge on nutritional status of children aged below five years in Isiolo district.	3.Parent's nutritional knowledge	-Maternal education	Nominal scale	Interviews	Descriptive -mean -standard deviation
To establish the influence of food ration preparation on nutritional status of children aged below five years in Isiolo district.	4.Food ration preparation	Practices	Ordinal scale	Interviews	Descriptive -mean -standard deviation
	Dependent Variable Nutritional status	-stunted -underweight -wasted	Nominal scale Nominal scale Nominal scale	Interviews	Descriptive -mean -standard deviation

3.12 Ethical Considerations

Due to the sensitivity of the information the respondents were to give concerning the feeding program, the researcher ensured that the information was handled carefully and confidentiality maintained. Hence the interview guides were not tied to individual names. The researcher did not force the respondents to give the information that she wanted, the respondents provided data freely and willingly thus she did not invade on the respondents' privacy. The researcher also assured the respondents of sharing the research outcome and its significance once the study was completed. The whole document was clearly cited to prevent plagiarism.

3.13 Summary

In this chapter the researcher explained the way in which the research was conducted, the research design that was used, the sample size and the procedure in which it was derived. The researcher also explained the type of research instrument she used and how reliability and validity were achieved. Ethical considerations were also explained and how they were achieved.

CHAPTER FOUR
DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.1 Introduction

This chapter discusses the interpretation and presentation of the findings. The purpose of the study was to assess the influence of parental involvement in feeding program on nutritional status of children below five years in Isiolo district. Demographic data was analysed first to provide a description of the respondent personal characteristics according to age, sex, occupation, religion, marital status, education level, source of drinking water and size of the household. Secondly data from the four variables namely; parental attitude, culture, parental nutritional knowledge and food ration preparation was analysed. This chapter focused on data analysis, interpretation and presentation. The researcher made use of frequency tables, percentages, correlations and regression to present data.

4.1.1Response rate

The target sample was 127 respondents who were parents of the malnourished children enrolled in the feeding program. All the respondents were interviewed during the food ration distribution.

4.2: Socio-demographic Information

In order to determine percentage gender participation in the study, the gender of every respondent who was interviewed was indicated.

4.2.1: Gender of the respondents

In relation to identifying the gender of the respondents, the researcher indicated respective gender of every respondent who was interviewed

Table 4.1: Gender of the Respondents

	Frequency	Percentage (%)
Male	11	8.66
Female	116	91.34
Total	127	100.0

From findings its evident that out of the 127 respondents interviewed, 8.66% were male while 91.34% were female. This is because child rearing practices are usually left to women among most communities.

4.2.2: Age of the Respondents

In relation to age bracket, 1.57% of the respondents interviewed were below 18 years, 59.10% were aged between 18 and 30 years, 22.83 were aged between 31 and 45 years and finally 16.50% were aged above 45 years.

Table 4.2: Age of the Respondents

Age category	Frequency	Percentage (%)
Below 18 years	2	1.57
18 to 30 years	75	59.10
31 to 45 years	29	22.83
45 years and above	21	16.50
Total	127	100.00

4.2.3: Marital Status of the respondents

In relation to marital status of the respondents, 68.5% of the respondents were married, 22.8% were single, 5.5% were divorced or separated and 3.1% were widowed

Table 4.3: Marital Status of Respondents

Age category	Frequency	Percentage (%)
Married	87	68.5
Single	29	22.8
Divorced/Separated	7	5.5
Widowed	4	3.1
Total	127	100.0

From the findings it is evident that most of the respondents were married.

4.2.4: Religion of the respondents

In relation to religion of the respondents, 54.3% were Christians, 38.6% were Muslims and 7.1% did not have any religious affiliation.

Table 4.4: Religion of the Respondents

Religion category	Frequency	Percentage (%)
Christian	69	54.3
Muslim	49	38.6
Non-religious	9	7.1
Total	127	100.0

From the findings it is clear that majority of the respondents were Christians.

4.2.5: Level of Education of the Respondents

In relation to the level of education, 71.4% were non-educated, 22% of the respondents had reached primary level, 5.8% had reached secondary level and 0.8% had reached College level.

Table 4.5: Level of Education of the Respondents

Education level category	Frequency	Percentage (%)
Non-educated	91	71.4
Primary	28	22.0
Secondary	7	5.8
College	1	0.8
Total	127	100.0

From the findings it can be deduced that majority of the respondents were none educated.

4.2.6: Occupation of the Respondents

In relation to occupation of the respondents, 11.8% were farmers, 61.4% were casual labourers, 24.4% were herders and 2.4% were businessmen or women.

Table 4.6: Occupation of the Respondents

Occupation category	Frequency	Percentage (%)
Farmer	15	11.8
Casual labourer	78	61.4
Herder	31	24.4
Businessman/woman	3	2.4
Total	127	100.0

From the findings it can be deduced that majority of the respondents were casual laborers.

4.2.7: Source of water for the respondents

In relation to the source of drinking water, 21.3% were fetching water from the taps, 17.3% from boreholes, 2.4% from protected well, 36.2% from laga and 22.8% from rivers.

Table 4.7: Source of Water for the Respondents

Source of water category	Frequency	Percentage (%)
Tap	27	21.3
Borehole	22	17.3
Protected well	3	2.4
Laga	46	36.2
River	29	22.8
Total	127	100.0

From the findings it is clear that majority of the respondents were fetching water from the laga.

4.2.8: Household Size among Respondents

In relation to the size of the households, 11.8% of the respondents had between 1 to 5 members, 63.0% had between 6 to 10 members and 25.2% had more than 10 members.

Table 4.8: Number of Household Members among Respondents

Number of Household members category	Frequency	Percentage (%)
1-5	31	11.8
6-10	82	63.0
Above 10	14	25.2
Total	127	100.0

From the findings, it is evident that majority of the respondents had households with 6-10 members.

4.2.9: Feeding Program Enrolment

In relation to the enrollment in the feeding program, 24.4% of the respondents' had their children enrolled in OTP program while 75.6% of the respondents' had their children enrolled in SFP program.

Table 4.9: Feeding Program Enrolment among the Respondents' Children

Feeding program category	Frequency	Percentage (%)
Outpatient Therapeutic Program	31	24.4
Supplementary Feeding Program	96	75.6
Total	127	100.0

From the above findings, it is clear that majority of the respondents had their children enrolled in SFP program.

4.2.10: Size of the Household and Enrollment Period within the Program

The researcher sought to determine the strength and direction of the household size and enrollment period in the program. This was done by finding the correlation between Size of the Household and Enrollment Period within the Program as depicted in Table 4.10.

Table 4.10: Correlation between Number of Household Members and Enrollment Period among Children within the Program

			Household size	Enrolment period
Pearson's p-value	Household size	Correlation Coefficient	1.000	-0.80
		Sig. (2-tailed)		.371
		N	127	127
	Enrolment period(in months)	Correlation Coefficient	-0.80	1.000
		Sig. (2-tailed)	.371	
		N	127	127

From these results, it can be deduced that there was a strong negative relationship between the household size and enrolment period, although not significantly different from 0 as the p-value (0.371) was greater than 0.10.

4.2.11: Age and the Type of Feeding Program

In seeking to know there was any relationship between the age of the respondent and the type of feeding program the child is enrolled in, Pearson's correlation of age and the type of feeding program was computed. The results of the computation are shown in Table 4.11.

Table 4.11: Correlation of Age and the Type of Feeding Program the Child is Enrolled in.

			Age	Type of feeding program
Pearson's p-value	Age	Correlation Coefficient	1.000	.125
		Sig. (2-tailed)		.161
		N	127	127
	Type of feeding program	Correlation Coefficient	.125	1.000
		Sig. (2-tailed)	.161	
		N	127	127

These results show that there was a weak positive relationship between the two variables. This was not significantly different from zero because the p-value (0.61) was greater than 0.10. It can therefore be deduced that the age of the respondent did not influence the type of feeding program the child was enrolled in.

4.2.12: Religion and Enrollment Period

In relation to the association between the religion of the respondents and enrollment period, 29% of the Christians had their children enrolled in the feeding program between 0-2 months, 47.8% had been enrolled between 3-6 months and 23.2% had been enrolled for more than 6 months. 32.7% of the Muslims had been enrolled between 0-2 months, 46.9% had been enrolled between 3-6 months and 20.4% for more than 6 months.

Table 4.12: Religion of the Respondents and Enrollment Period (months) among children

		0-2 months	**3-6 months**	**Above 6 months**	Total
Religion	Christian (Count)	20	33	16	69
	(%)	29.0%	47.8%	23.2%	100%
	Muslim	16	23	10	49
		32.7%	46.9%	20.4%	100%
	Others	4	1	4	9
		44.4%	11.2%	44.4%	100%
Total		40	57	30	127
		31.5%	44.9%	23.6%	100%

From the findings it is evident that a higher percentage of Christians were enrolled in the feeding program between three to six months.

4.2.13: Occupation and the Enrollment Period

In relation to the association between the type of occupation of the respondents and enrolment period those who said that they were farmers 26.7% had their children enrolled in the feeding program between 0-2 months, 53.3% between 3-6 months and 20% for more than 6 months. 32.5% of casual laborers had their children enrolled between 0-2 months, 45.5% for 3-6 months and 22% for more than 6 months. For herders, 25.8% had their children enrolled between 0-2 months, 41.9% between 3-6 months and 32.3% for more than 6 months. For businessmen and women, 75% had their children enrolled between 0-2 months and 25% between 3-6 months

Table 4.13: Occupation of the Respondents and the Enrollment Period among Children

	Enrolment Period (months)	0-2 months	3-6 months	Above 6 months	Total
Occupation	Farmer (Count)	4	8	3	15
	(%)	26.7%	53.3%	20.0%	100%
	Casual labourer	25	35	17	77
		32.5%	45.5%	22.0%	100%
	Herder	8	13	10	31
		25.8%	41.9%	32.3%	100%
	Businessman/woman	3	1	0	4
		75%	25%	0%	100%
Total		40	57	30	127
		31.5%	44.9%	23.6%	100%

From the findings it is evident that majority of farmers and casual laborers had their children enrolled in the feeding program between 3 to 6 months whereas majority of the businessmen/women were enrolled between 0 to 2 months

4.3: Parental attitude and nutritional status

The researcher sought to determine influence of parental attitude on nutritional status among children.

4.3.1: Quantity of the Food Ration

In relation to the respondents' satisfaction with the quantity of the food ration, 40.2% said that they were very dissatisfied, 28.3% dissatisfied, 14.2% did not know whether they are satisfied or not, 12.6% satisfied and 4.7% very satisfied.

Table 4.14: Quantity of the Food Ration given Fortnightly or Weekly

Size of the food ration responses	Frequency	Percentage (%)
Very dissatisfied	51	40.2
Dissatisfied	36	28.3
Neither Satisfied nor dissatisfied	18	14.2
Satisfied	16	12.6
Very satisfied	6	4.7
Total	127	100.0

From the findings majority of the respondents were very dissatisfied with size of the food ration.

4.3.2: Household Size and Quantity of Food Ration

In relation to the association between the household size and level of satisfaction with the quantity of food ration showed that, 13.7% of those who were very dissatisfied with the quantity of food ration had 1-5 household members, 58.8% had 6-10 members and 27.5% had more than 10 members. 19.4% of those who were dissatisfied had 1-5 household members, 66.7% had 6-10 household members and 13.9% had more than 10 household members. 5.6% of those who were neither satisfied nor dissatisfied had 1-5 household members, 66.7% had 6-10 household members and 27.7% had more than 10 members. 25% of those who were satisfied had 1-5 household members, 62.5% had 6-10 members and 12.5% had more than 10 members. 100% of those who were very satisfied had 6-10 household members.

Table 4.15: Quantity of Food Ration given Fortnightly or Weekly and Number of Household Members

	Number of Household members		**1-5 members**	**6-10 members**	**More than 10**	Total
Quantity of the food ration	Very dissatisfied	(Count)	7	30	14	51
		(%)	13.7%	58.8%	27.5%	100%
	Dissatisfied		7	24	5	36
			19.4%	66.7%	13.9%	100%
	Neither satisfied nor dissatisfied		1	12	5	18
			5.6%	66.7%	27.7%	100%
	Satisfied		4	10	2	16
			25%	62.5%	12.5%	100%
	Very satisfied		0	6	0	6
			0%	100%	0%	
Total			19	82	26	127
			31.5%	41.9%	32.3%	100%

From the findings it is evident that majority of those who were very dissatisfied, dissatisfied, neither satisfied nor dissatisfied, satisfied or very satisfied had 6 to 10 household members.

4.3.3: Feeding Program Improving Nutritional Status

In relation to the respondents feeling that the feeding program would improve their children's nutritional status, 3.9% were very dissatisfied, 37.0% dissatisfied, 24.4% were neither satisfied nor dissatisfied, 30.7% satisfied and 3.9% very satisfied.

Table 4.16: Feeding Program Improving Nutritional Status

Response category	Frequency	Percentage (%)
Very dissatisfied	5	3.9
Dissatisfied	47	37.0
Neither satisfied nor dissatisfied	31	24.4
Satisfied	39	30.7
Very satisfied	5	3.9
Total	127	100.0

From the findings it can be deduced that majority of the respondents were dissatisfied that the feeding program would improve their children's nutritional status.

4.3.4: Quality of Service

In relation to the respondents' satisfaction with the quality of service provided during the food ration distribution, 5.5% were very satisfied, 42.5% dissatisfied, 1.6% were neither satisfied nor dissatisfied, 45.7% satisfied and 4.7% very satisfied.

Table 4.17: Quality of Service given during Food Ration Distribution

Response category	Frequency	Percentage (%)
Very dissatisfied	7	5.5
Dissatisfied	54	42.5
Neither satisfied nor dissatisfied	2	1.6
Satisfied	58	45.7
Very satisfied	6	4.7
Total	127	100.0

From the findings it can be deduced that majority of the respondents were satisfied with the quality of service provided during the food ration distribution.

4.3.5: Type of Food Ration

In relation to the respondents' satisfaction with the type of food ration given, 18.9% were very dissatisfied, 44.9% dissatisfied, 3.9% Neither satisfied nor dissatisfied, 26% satisfied and 6.3% very satisfied.

Table 4.18: Level of Satisfaction with Type of Food Ration Given.

Response category	Frequency	Percentage (%)
Very dissatisfied	24	18.9
Dissatisfied	57	44.9
Neither satisfied nor dissatisfied	5	3.9
Satisfied	33	26.0
Very satisfied	8	6.3
Total	127	100.0

From the findings majority were dissatisfied with the type of food ration given.

4.3.6: Palatability of Food Ration

In relation to the respondents' satisfaction with the palatability of the food ration, 7.9% were very dissatisfied, 16.5% dissatisfied, 1.6% Neither satisfied nor dissatisfied, 43.3% satisfied and 30.7% very satisfied.

Table 4.19: Level of Satisfaction with Palatability of Food Ration Given

Response category	Frequency	Percentage (%)
Very dissatisfied	10	7.9
Dissatisfied	21	16.5
Neither satisfied nor dissatisfied	2	1.6
Satisfied	55	43.3
Very satisfied	39	30.7
Total	127	100.0

From the findings it can be deduced that majority of the respondents were satisfied with the palatability of the food ration.

4.3.7: Means and Standard deviations of Parental Attitude towards Feeding Program

In relation to the extent to which the respondents were satisfied with the feeding program, means and standard deviations on parental attitude towards feeding program on the above statements were drawn.

Table 4.20: Statements on Parental Attitude towards Feeding Program

Response category	Mean	Std. deviation
Quantity of the food ration	2.13	1.21
Feeding program improving nutritional status	2.94	0.99
Quality of service	3.02	1.14
Type of food ration given	2.56	1.24
Palatability of the food ration	3.72	1.28

Respondents agreed with mean of 3.72 and 3.02 that they were satisfied with the palatability of the food ration and quality of service respectively. Further the findings showed that the respondents were a little bit not satisfied with quantity of food ration and the type of food ration compared to the quality of service and palatability of the food ration.

4.4: Culture and nutritional status

The researcher sought to determine the extent to which culture influence nutritional status among children.

4.4.1: Prohibition of Foods among Children

In relation to the prohibition of foods among children, 37% of respondents stated that they had food prohibitions among children while 63% stated that they did not have any food prohibitions.

Table 4.21: Prohibition of Foods among Children

Prohibition of foods	Frequency	Percentage (%)
Yes	47	37
No	80	63
Total	127	100.0

From the findings it can be deduced that majority of respondents did not have any food restriction among children.

4.4.2: Staple Food in the Community

In relation to the staple food in various communities, 37% of respondents stated that their staple food was rice, 6.3% was matoke and 56.7% stated that maize and beans (githeri) is their staple food.

Table 4.22: Staple Food among the Respondents in their Community

Staple food	Frequency	Percentage (%)
Rice	47	37.0
Matoke	8	6.3
Maize and beans	72	56.7
Total	127	100.0

These results show that majority of the respondents had their staple food as maize and beans.

4.4.3: Weaning Foods

In relation to types of weaning foods, the researcher asked the respondents to state the type of foods that they used to wean their children. 16.5% stated a balanced weaning diet while 83.5% stated an unbalanced weaning diet.

Table 4.23: Nutritional Value of the Weaning Foods

Weaning Foods Category	Frequency	Percentage (%)
Balanced diet	21	16.5
Unbalanced diet	106	83.5
Total	127	100.0

The findings showed that majority of the respondents weaned their children with unbalanced diet.

4.4.4: Type of Feeding Program and Quality of Weaning Diet

In seeking to know the association between type of feeding program and the quality of the diet that the respondents used to wean their children, 18.8% of those enrolled in OTP feeding program had been weaned with a balanced diet while 81.2% had been weaned with an unbalanced diet. 15.8% of those enrolled in SFP feeding program, had been weaned with a balanced diet while 84.2% had been weaned with an unbalanced diet.

Table 4.24: Type of Feeding Program a Child is Enrolled in and Quality of Weaning Diet Used

	Quality of Weaning Diet Used	Balanced diet	Unbalanced diet	Total
Type of feeding program	Outpatient Therapeutic Program	6 18.8%	26 81.2%	32 100%
	Supplementary Feeding Program	15 15.8%	80 84.2%	95 100%
Total		21 16.5%	106 83.5%	127 100%

These results show that majority of the children who were enrolled in either program had received an unbalanced diet during weaning.

4.4.5: Age of Weaning

In relation to the age of weaning children, 89.8% of the respondents stated that they weaned their children at 6 months while 10.2% stated that they weaned their children after 6 months.

Table 4.25: Age of Weaning Children

Weaning age category	Frequency	Percentage (%)
At 6 months	114	89.8
Above 6 months	13	10.2
Total	127	100.0

From the findings, majority weaned their children at 6 months.

4.4.6: Food Restrictions among Pregnant Women

In relation to restriction of certain types of foods among pregnant women, 11% of the respondents stated that pregnant women were being restricted to certain types of foods while 89% stated that pregnant women did not have any food restrictions.

Table 4.26: Food Restrictions among Pregnant Women within the Community

Restriction status	Frequency	Percentage (%)
Yes	14	11
No	113	89
Total	127	100.0

From the findings, majority of respondents did not have any food restrictions among pregnant women within their communities.

4.4.7: Type of Feeding Program and Weaning Foods Used

In seeking to know whether there was any relationship between type of feeding program the child is enrolled in and the type of foods that the respondents used to wean the child, Pearson's correlation of type of feeding program and the weaning foods was computed.

Table 4.27: Correlation between Type of Feeding Program the Child is Enrolled in and Weaning Foods Used

			Type of feeding program	Weaning foods used
Pearson's p-value	Type of feeding program	Correlation Coefficient	1.000	.035
		Sig. (2-tailed)		.699
		N	127	127
	Weaning foods used	Correlation Coefficient	.035	1.000
		Sig. (2-tailed)	.699	
		N	127	127

The results showed a weak positive relationship between the two variables though not significant from 0 as the p-value (0.699) was greater than 0.10. It can therefore be deduced that the quality of weaning foods did not influence the type of feeding program the child was enrolled in.

4.5: Parental nutritional knowledge and nutritional status

The researcher sought to determine the influence of parental nutritional knowledge and nutritional status among children.

4.5.1: Hearing about Nutrition among Children

In relation to where the respondents heard about nutrition among children, 11.8% stated that they have never heard about nutrition among children, 83.5% stated that they heard about it first at the hospital, 0.8% stated they heard about it from friends and 3.9% heard it from school.

Table 4.28: Hearing about Nutrition among Children First

	Frequency	Percentage (%)
Never heard	15	11.8
Hospital	106	83.5
Friends	1	0.8
School	5	3.9
Total	127	100.0

From the findings it is evident that majority of the respondents had heard about nutrition among children at the hospital.

4.5.2: Knowledge on Balanced Diet

In relation to the knowledge on balanced diet of the respondents, 18.1% described correctly what a balanced diet is while 81.9% did not describe it correctly.

Table 4.29: Knowledge on Balanced Diet among Respondents

Knowledge on balanced diet	Frequency	Percentage (%)
Well described	23	18.1
Poorly described	104	81.9
Total	127	100.0

From the findings, majority of the respondents did not know what a balanced diet contains.

4.5.3: Nutrition Counseling

In relation to whether the respondents have ever had any nutrition counseling, 59.8% stated that that they have had nutrition counseling while 40.2% stated that that they have never had nutrition counseling.

Table 4.30: Nutrition Counseling among Respondents

Ever had any nutrition counselling	Frequency	Percentage (%)
Yes	76	59.8
No	51	40.2
Total	127	100.0

From the findings majority of the respondents had received nutrition counseling.

4.5.4: Nutrition Education

In relation to whether the respondents had ever attended any nutrition education session, 52.8% stated that they had attended a nutrition education session while 47.2% stated that they had never had any nutrition education session.

Table 4.31: Nutrition Education Attainment among Respondents

Attendance of nutrition education session	Frequency	Percentage (%)
Yes	67	52.8
No	60	47.2
Total	127	100.0

From the findings it can be deduce that majority of the respondents had attended a nutrition education session.

4.5.5: Level of Education and Knowledge on Balanced Diet

In seeking to know whether there was any relationship between the level of education and knowledge on balanced diet among the respondents, Pearson's correlation of level of education and knowledge on balanced diet was computed

Table 4.32: Correlation between Level of Education of the Respondents and Knowledge on Balanced Diet among Respondents

			Level of education	Knowledge on balanced diet
Pearson's p-value	Level of education	Correlation Coefficient	1.000	.066
		Sig. (2-tailed)		.463
		N	127	127
	Knowledge on balanced diet	Correlation Coefficient	.066	1.000
		Sig. (2-tailed)	.463	
		N	127	127

The results show that there was a weak positive relationship between the two variables. Although not significant from 0 as the p-value (0.463) was greater than 0.10

4.6: Preparation of food ration and nutritional status

The researcher sought to determine the influence of food ration preparation on nutritional status among children.

4.6.1: Frequency of Food Ration (porridge) Preparation

In relation to the frequency of food ration (porridge) preparation, 64.6% stated of the respondents that they prepared the food ration daily, 6.2% weekly and 29.2% did not have a specific time for preparation.

Table 4.33: Frequency of Food Ration (porridge) Preparation

Frequency	Frequency	Percentage (%)
Daily	62	64.6
Weekly	6	6.2
No specific time	28	29.2
Total	96	100.0

From the findings it can be deduced that majority of the respondents prepared the food ration for their children on daily basis.

4.6.2: Duration of Making the Food Ration (porridge)

In relation to the duration of making the porridge, 30.2% of respondents stated that they made the porridge within less than 10 minutes, 66.7% between 10 to 30 minutes and 3.1% over 30 minutes.

Table 4.34: Duration of Making the Food Ration (porridge)

Duration	Frequency	Percentage (%)
Less than 10 minutes	29	30.2
10-30 minutes	64	66.7
Over 30 minutes	3	3.1
Total	96	100.0

From the findings it can be deduced that majority of the respondents prepared the porridge between 10 to 30 minutes.

4.6.3: Frequency of Taking Food Ration (nut based paste)

In relation to the frequency of taking the nut based paste, 64.5% of the respondents stated that they fed their children on the nut based paste on a daily basis while 35.5% did not have a specific time of feeding.

Table 4.35: Frequency of Taking Food Ration (nut based paste)

Frequency	Frequency	Percentage (%)
Daily	20	64.5
No specific time	11	35.5
Total	31	100.0

From the findings it is evident that majority of the respondents fed their children on the nut based paste daily.

4.6.4: Sharing of Food Ration

In relation to the sharing of food ration, 67.7% of the respondents stated that the food ration was shared among other members of the household while 32.3% stated only the sick child took the food ration.

Table 4.36: Sharing of Food Ration among other Household Members

Sharing	Frequency	Percentage (%)
Yes	86	67.7
No	41	32.3
Total	127	100.0

From the findings it is evident that majority of the respondents had the food ration shared among other household members.

4.6.5: Quantity of Food Ration and Sharing of Food Ration

In relation to the association between the respondents' satisfaction with the quantity of food ration and sharing of the food ration among other members of the household, 66.7% of those very dissatisfied with the quantity of the food declared that they shared the food ration while 33.3% did not. 75% of those who were dissatisfied had the food ration shared while 25% did not. 66.7% of those who were neither satisfied nor dissatisfied had the food ration shared while 33.3% did not. 50% of those who were satisfied had the food ration shared while another 50% did not. Lastly 83.3% of those who claimed to be very satisfied had the food ration shared while 16.7% did not.

Table 4.37: Quantity of Food Ration given and Sharing of Food Ration among other Household Members

	Sharing of Food Ration	Yes	No	Total
Quantity of food ration	Very dissatisfied (Count)	34	17	51
	(%)	66.7%	33.3%	100%
	Dissatisfied	27	9	36
		75%	25%	100%
	satisfied nor dissatisfied	12	6	18
		66.7%	33.3%	100%
	Satisfied	8	8	16
		50%	50%	100%
	Very satisfied	5	1	6
		83.3%	16.7%	100%
Total		86	41	127
		67.7%	32.3%	100%

From the findings it is evident that those who were very dissatisfied with the feeding program shared the food ration among other household members.

4.7: Regression analysis of Dependent and Independent variables

In this study, a multiple regression analysis was conducted to test the influence among variables (independent) on nutritional status. The research used statistical package for social sciences (SPSS V 21.0) to code, enter and compute the measurements of the multiple regressions.

Table 4.38: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.386	.149	.111	.09621

a. Predictors: (Constant), parental attitude, culture, parental nutritional knowledge and food ration preparation.

The four independent variables that were studied explained 14.9% of nutritional status as represented by the R^2. This therefore means that other factors not studied in this research contributed 85.1% of nutritional status among the children aged below five years.

Table 4.39: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.147	4	.037	3.978	.005[a]
	Residual	.842	91	.009		
	Total	.990	95			

a. Predictors: (Constant), parental attitude, culture, parental nutritional knowledge and food ration preparation.

b. Dependent Variable: nutritional status.

The significance value is 0.005 which is less that 0.05 thus the model is statistically significance in predicting how parental attitude, culture, parental nutritional knowledge and food ration preparation influence nutritional status.

Table 4.40: Coefficients of Variables

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	2.074	.070		29.824	.000
	Parental attitude	.019	.020	.095	.975	.332
	Culture	-.116	.036	-.317	-3.244	.002
	Parental nutrition knowledge	-.021	.020	-.102	-1.036	.303
	Food ration preparation	.024	.019	.119	1.219	.226

a. Dependent Variable: nutritional status

The linear regression model assumes that there is a linear, or "straight line," relationship between the dependent variable and each predictor. This relationship is described in the following formula.

$y= 2.074 + 0.019X_1 - 0.116X_2 – 0.021X_3 + 0.024X_4$

The regression equation above has established that taking all factors into account (parental attitude, culture, parental nutrition knowledge, food ration preparation) and changing the factors by 1 unit, nutrition status will improve by 1.98. The findings presented also show that taking all other independent variables at zero, a unit change in parental attitude would lead to a 2.093 unit change in nutrition status and a unit change in culture would lead to a 1.958 unit change in nutrition status. Further, the findings shows that a unit change in parental nutrition knowledge would lead to a 2.053 unit change in nutrition status. In addition, the findings show that a unit change in food ration preparation would lead to a 2.05 unit change in nutrition status.

This infers that parental attitude has the biggest influences to nutrition status followed by parental nutrition knowledge, food ration preparation while culture influence nutrition status the least.

CHAPTER FIVE

SUMMARY, DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presented the summary, discussion of key data findings, conclusion drawn from the findings highlighted and recommendation made there-to. The conclusions and recommendations drawn were focused on addressing the purpose of this study which was to determine the influence of parental involvement in the feeding program on nutritional status of children in Isiolo district.

5.1.1 Summary of the Findings

The study revealed that majority of the respondents were females at 91.34%. Most of the respondents were aged between 18 to 30 years at 59.10% while majority of the respondents were married at 68.5%. Most of the respondents were Christians 54.3% while most of the respondents were none educated at 71.4%. The study also revealed that most of the respondents 38.6% obtained drinking water from the lagas while most of the respondents 63.0% reported that their households had 6 to 10 members. Further 75.6% of the respondents had their children enrolled in Supplementary Feeding Program while 24.4% in Outpatient Therapeutic Program.

In relation to the influence of parent's attitude towards feeding program on nutritional status of children aged below five years in Isiolo district, the study revealed that majority of the respondents 40.2% were very dissatisfied with the quantity of the food ration, 28.3% dissatisfied, 14.2% both neither satisfied nor dissatisfied, 12.6% satisfied and 4.7% very satisfied. In relation to the respondents feeling that the feeding program would improve their children's nutritional status, the study found out that majority of the respondents 37.0% dissatisfied 30.7% satisfied 24.4% were neither satisfied nor dissatisfied, 3.9% were very dissatisfied, and 3.9% very satisfied. Most of the respondents 45.7% were satisfied with the quality of service provided during the food ration distribution, 42.5% dissatisfied, 5.5% were very satisfied, 4.7% very satisfied and 1.6% were neither satisfied nor dissatisfied. Majority of the respondents 44.9% were dissatisfied with the type of food ration given, 26% satisfied, 18.9% very dissatisfied, 6.3% very satisfied and 3.9% neither satisfied nor dissatisfied. The study found out that most of the respondents 43.3% were satisfied with the palatability of the food ration, 30.7% very satisfied, 16.5% dissatisfied, 7.9% were very dissatisfied and 1.6% neither satisfied nor dissatisfied. Further respondents agreed with a mean of 3.72 and 3.02

that they were satisfied with the palatability of the food ration and quality of service respectively. Further a unit change in parental attitude would lead to a 2.093 change in nutrition status.

In relation to the influence of culture on nutritional status of children aged below five years in Isiolo district, the study revealed that majority of the respondents 63% stated that they did not have any food prohibitions while 37% of respondents stated that they had food prohibitions among children. The study found out that majority of the respondents 56.7% stated that their staple food was maize while 37.0% was rice. Most of the respondents 83.5% had weaned their children with unbalanced diet while 16.5% used a balanced diet. The study revealed further that 81.2% and 84.2% of those enrolled in OTP and SFP programs respectively were weaned with unbalanced diet. The study also found out that majority of the respondents 89.8% weaned their children at 6 months while 10.2% weaned children after 6 months. A correlation was also done which revealed that there was a weak positive relationship between the type of feeding program that the child was rolled in and quality of foods used during weaning. Further the study revealed that a unit change in culture would lead to a 1.958 change in nutrition status.

In relation to the influence of parent's nutritional knowledge on nutritional status of children aged below five years in Isiolo district, the study found out that 83.5% learnt about nutrition among children at the hospital while 11.8% had never learnt nor heard about it. Also 81.9% did not understand what a balanced diet is while 18.1% were well conversant with the definition. Further the study revealed that only 59.8% and 52.8% had received nutrition counselling and nutrition education respectively. There was also a weak positive relationship between the level of education of the respondent and his/her knowledge on balanced diet. The study revealed further that a unit change in parental nutrition knowledge would lead to a 2.053 change in nutrition status.

In relation to the influence of food ration preparation on nutritional status of children aged below five years in Isiolo district, the study found out that 64.6% and 64.5% prepared the 'porridge' and nut based paste on a daily basis respectively. On the other hand an appreciable proportion of 29.2% and 35.5% did not have a specific routine for 'porridge' and nut based paste preparation respectively. The study also revealed that 66.7% prepared the food ration (porridge) within 10 to 30 minutes, 30.8% within less than 10 minutes and 3.1% more than 30 minutes. 67.7% reported to have been sharing the food ration among other household

members while 32.3% were not sharing. Finally the findings showed that a unit change in food ration preparation would lead to a 2.05 change in nutritional status.

5.2: Discussions

The target sample was 127 respondents who were parents of the malnourished children below five years within Isiolo district. All the respondents were interviewed. Majority of the respondents were females; meaning most of the children were accompanied by their mothers to the health facility to pick their food ration. According to Caldwell (1981), a mother is the principal provider of the primary care that her child needs during the first six years of life. Further, majority of the respondents were aged between 18 to 30 years which could have been attributed by culture among the people living in ASAL areas whereby women tend to get married at an early age (Harmon and Walker, 1995). In addition, majority of the respondents were none educated.

A correlation between size of the household and the enrolment period produced a strong negative relationship. In that the larger the household size the shorter the period of feeding program enrolment. A further correlation between the age of the respondent and type of feeding program the child is enrolled in produced a weak positive relationship. In that an increase in parent's age would lead to an increase of a child's nutritional status. Mariara *et al.* (2009) concurs with the findings that maternal age influences nutritional status among children. In that the age of the mother or caregiver must support decision-making and ability to provide the food and nutritional needs in the right quality and quantity.

5.2.1 Parental attitude towards feeding program

The study revealed that the respondents were more satisfied with the palatability of the food ration and quality of service given by the health workers during food ration distribution compared to the quantity of the food ration, food ration improving nutritional status and the type of food ration. Most of the respondents were not content with the quantity of the food ration because they did not understand that the feeding program was a form of medication, instead they thought that the quantity should be increased so that it can be enough for the whole family. The moment the food ration is shared among other people it means the child is not getting the required nutrients for that particular day. This in turn leads to delayed attainment of good nutritional status (UNHCR, 1997). This would also have been a contributing factor as to why some respondents were neither satisfied nor dissatisfied that the food ration would improve the nutritional status of their children. On the other hand the

respondents were satisfied with the palatability of the food ration because they claimed that it was flavoured and was easy to prepare.

The respondents were satisfied with the quality of service that they received from health workers during food ration distribution. This must have been attributed by the fact that all health workers handling or dealing with feeding program must undergo some training on management of acute malnutrition (WFP/UNHCR, 1997). Those who were not satisfied with the type of food ration wanted the content and form changed so that it can be shared by everyone in the family.

5.2.2: Culture

The study found out that most of the respondents did not have food prohibitions among children in their communities. All those who reported of food prohibitions were affiliates of Islamic religion. Dwyer (1988) explains that certain religious grounds of abstaining from certain foods may affect the nutritional options available to mothers for purposes of feeding and bringing up healthy children. Appleby, Key and Rosell (2006) share a similar opinion to the effect that the influence of religion to the dietary and feeding options available greatly reduces the chance of gaining beneficial nutritional supplies from certain foods. Also among those who were interviewed a higher percentage reported that their staple food was maize and beans. According to Katz (2003), a balanced diet is a diet that provides all the essential nutrients from the three main food groups namely: carbohydrates, proteins and vitamins and minerals in sufficient quantity and in the correct proportions to promote good health.This means that these communities do not get a balanced diet which could also be affecting the nutritional status of children. Majority of the respondents also reported to have weaned their children with an imbalanced diet according to Table 4.18 above. Consumption of imbalanced diet often leads to malnutrition (Johanna (2012). This was evident when the researcher ran a correlation between the type of feeding program the child was enrolled in and the type of foods used for weaning. Though the association was weak, it reflected a positive relationship. In table 4.20 some respondents stated that pregnant women had some food restrictions and this would in turn lead to low birth weight babies whose weight gain is slower compared to those babies born with normal weight (Cleland and Kaufmann, 1994).

The study also revealed that majority of the children who were enrolled in either of the feeding program had been weaned with unbalanced diet. These findings are echoed by

UNICEF (1997), whereby a child who receives a poor weaning diet has higher chances of becoming malnourished as compared to those who receive a balanced weaning diet.

5.2.3 Parental nutritional knowledge

Most of the respondents stated that they had heard about nutrition among children for the first time at the hospital. The level of education of the respondents could have been an underlying cause of this situation since 71.4% of the respondents were none-educated according to Table 4.5. The ASALs areas in Kenya are known for low education uptake by women due to several demographic factors. Among the factors that negatively affect educational uptake among the women in ASALs, include poor institutional distribution, gender roles, economic difficulties and other environmental difficulties among many other challenges facing the regions. In areas where education facilities may be inadequate to disseminate basic nutritional information to mothers regarding raising healthy children, informal education setting can be considered. Interaction of illiterate mothers with educated peers and other nutrition and health stakeholders contributes to change the outlook to healthy feeding (Berger and Leigh, 1989) and maybe that would have contributed to the majority of respondents stating that they have attended nutrition counselling and education sessions. Similarly a higher percentage of respondents did not have knowledge on balanced diet. This could have translated into poor selection of the types of foods that they feed their children with and in turn poor attainment of nutritional status among the children. On the contrary, Wali and Gambhir (1975) revealed that there is no relationship of mothers' nutrition knowledge on the nutritional status of children as mothers of well-nourished children were as ignorant about essential facts regarding nutrition as those of undernourished children.

5.2.4 Food ration preparation

Majority of the respondents with both severely and moderately malnourished children reported to have been preparing the food ration (porridge) on a daily basis which is one of the protocols of managing acute malnutrition (UNHCR, 1997). On the other hand most of the respondents seemed to be overcooking the ‘porridge’ as they were making it between 10 to 30 minutes. The CSB flour that is used to make this porridge is usually supplied to the beneficiaries in precooked form which cuts down the preparation time to less than 10 minutes. Overcooking the food ration meant denaturing of some vital nutrients that re contained in that food ration (UNHCR/WFP, 1997). Though the respondents claimed to have

been feeding their children with the food ration on a daily basis, 67.7% reported to have been sharing the food ration among other members of the household. This would have been a contributing factor to the children being enrolled in the program for more than four months. A child should take 2 to 4 months to regain their health if all the protocols of managing acute malnutrition are followed (UNICEF, 2009). The study also found out that those who were very dissatisfied with the quantity of the food ration shared the food ration among other household members. They wanted the quantity increased in order to cater for the needs of other household members.

5.3: Conclusions

The study concluded that majority of parents or the caregivers were satisfied with the feeding program and they were optimistic that the nutritional status of their children would improve. However majority of the respondents termed the feeding program as General Feeding Program instead of form of medication. This would in turn affect the duration of gaining good nutritional status among the malnourished children. On the other hand majority of the respondents were satisfied with the palatability of the food ration and was easy to prepare. A unit change in parental attitude would lead to a 2.093 unit change in nutritional status. Therefore the study concluded that the parents' attitude towards the feeding program influenced the nutritional status of children to some extent.

The study also concluded that the staple food among respondents was maize and beans (githeri). Majority also weaned their children with an unbalanced diet that could have contributed to the high GAM rate levels within the district. This was revealed in a cross tabulation between type of feeding program the child was enrolled in and the quality of weaning diet used whereby majority of those children enrolled in either of the program had were reportedly weaned with an unbalanced diet. The study concluded that the type of weaning foods affects the nutritional status of a child. Further the study revealed that a unit change in culture would lead to a 1.958 unit change in nutrition status. Therefore the study concluded that cultural practices influence nutrition status among children.

The study revealed that majority of the respondents had learnt about nutrition among children at the hospital. Similarly majority did not have knowledge on balanced diet which is related to the level of education status as the researcher found from the study that majority of the respondents were none educated. Further the study found out that a unit change in parental

nutrition knowledge would lead to a 2.053 unit change in nutrition status. The study therefore concluded that parental nutritional knowledge influences the nutritional status of children.

The study concluded that despite the food ration being fed to the malnourished children on a daily basis as per the guidelines, majority of the respondents had the food ration overcooked which led to denaturing of some vital nutrients that were meant to improve the nutritional status of the malnourished children. Furthermore the study concludes that sharing of food ration among other healthy household members led to delayed attainment of good nutritional status and that the respondents had the wrong perception about the feeding program. The findings also showed that a unit change in food ration preparation would lead to a 2.05 unit change in nutrition status. Therefore the study concluded that food ration preparation procedures influences nutritional status among children.

5.4 Recommendations

This study established that majority of the respondents termed the feeding program as General Feeding Program instead of form of medication (Therapeutic Feeding Program). The study therefore recommended that the parents accompanying the malnourished be given a health education regarding the importance of the feeding program, reasons of being enrolled in the feeding program and the risks of prolonged poor nutritional status among children

The study found out that majority had their staple food as maize and beans which does not represent a balanced diet. In addition most of the respondents used unbalanced diets to wean their children. This study recommended that there should be intensified provision of health education at the hospital and outreach sites regarding Infant and Young Child Feeding.

The study also established that there was poor knowledge on nutrition among children balanced diet among the interviewed respondents. This study recommended that mothers to be enrolled in the mother support groups to learn more on Complementary Feeding and infant feeding practices.

The study also revealed that majority of the respondents were overcooking the food ration and they were sharing the food ration among other household members. This study recommended that parents to be educated on the preparation of the food ration upon every visit to the health facility. They should also be educated on the importance of the feeding program.

5.5 Suggestions for further studies

From the findings, further research was needed in the area of influence of government policies especially on land ownership policies and food security on nutritional status of children aged below five years within the district. The study also recommended further studies on other strategies to curb malnutrition other than through feeding programs. Finally the study recommended further studies in the area of women empowerment and nutritional status of children aged below five years.

REFERENCES

Administration Committee on Coordination–Sub-Committee on Nutrition (ACC/SCN). 2000. *Fourth report on the world nutrition situation.* Geneva.

Al-Hourani, H. M., & Atoum, M. F. (2007).Body Composition, Nutrient Intake and Physical Activity Patterns in Young Women during Ramadan, *Singapore Medical Journal, 48***:**906-910

Appleby, P. N., Key, T. J., & Rosell, M. S. (2006). Health Effects of Vegetarian and Vegan Diets, *Proceeding of the Nutrition Society Journal,* 2006, *65:*35-41

Battistin, I. N., Caselli, D., Bedogni, G., & Gatti, G. (1992). Food intake in University students and its impact on nutritional status, *Nutrition Research Journal*: 222-33.

Berger, M. C., & Leigh, P. (1989). Schooling, Self-Selection and Health, Journal *of Human Resources*, *4*(3):433-455

Birch, L.L., Fisher, J.O., Markey, C.N., Grimm, T. K., Sawyer, R.,& Johnson, S.L. (2001). Confirmatory factor analysis of the Child Feeding Questionnaire: a measure of parental attitudes, beliefs and practices about child feeding and obesity proneness. *Appetite* 36, 201–210.

Birch, L. L., & Fisher, J. O. (2000). Mothers' child-feeding practices influence daughters' eating and weight. *America Journal on Nutrition* 71, 1054–1061.

Bogdan, R. C., & Biklen, S. K. (2003).*Qualitative research for education: An introduction to theories and methods* (4th ed.). New York: Pearson Education group. (pp. 110-120).

Brown, K. H., (1991). The importance of dietary quality versus quantity for weanlings in less developed countries: a framework for discussion. *Food Nutrition Bulletin*; 13:86–94.

Caldwell, J. C. (1981). Maternal education as a factor in child mortality. *World Health Forum*; 2:75-78

Cleland, J., & Kaufmann, G. (1994). "Maternal Education and Child Survival: Anthropological Responses to Demographic Evidence," *Health Transition Review*, *4*(2):196–199

Christin L. S., (2011). Parent-Child Interaction During Feeding — How It May Influence Kids' Weight and Relationship With Food. *Today's Dietitian.* Vol. 13 No. 4 P. 32

Currie, J., & Hyson, R. (1999). Is the Impact of Health Shocks Cushioned by Socioeconomic Status? The Case of Low Birth Weight, *American Economic Review, 89*(2):245-250.

Cutting, T. M., Fisher, J. O., Grimm, T. K., & Birch, L. L. (1999). Like mother, like daughter: familial patterns of overweight are mediated by mothers' dietary disinhibition. *American Journal of Clinical Nutrition* 69, 608–613.

Dindyal, S. & Dindyal, S. (2004). How Personal Factors, Including Culture And Ethnicity, Affect The Choices And Selection Of Food We Make, *The Internet Journal of Third World Medicine*. *1*(2):1539-4646

Dwyer, J. T., (1988). Health Aspects of Vegetarian Diets**,** *American Journal of Clinical Nutrition, 48***:** 712-738

Faith, M. S., Scanlon, K. S., Birch, L. L., Francis, L. A.,& Sherry, B. (2004). *Parent-child feeding strategies and their relationships to child eating and weight status*. 12(11), 1711–1722

FAO, 1993.Food and Nutrition in the Management of Group Feeding Programmes, *FAO Food and Nutrition Paper* 23 Rev.1;

Fisher, J. O., & Birch, L.L. (1999). Restricting access to foods and children's eating. *Appetite* 32, 405–419.

Gibson, R. S. (1994). Zinc nutrition in developing countries. *Nutrition Research Review*.; 7:151– 73.

GOK, (2007). Kenya Vision 2030: A Competitive and Prosperous Kenya. Government Printer, Nairobi.

Golden, M. H., (1991).The nature of nutritional deficiency in relation to growth failure and poverty. *Acta Paediatrica Scandinavica Journal* Suppl.; 374:95–110.

Grant, K, & Stone T., (1986). Maternal comprehension of home-based growth charts and its effect on growth. *Journal of Tropical Pediatrics*; 32:255-57.

Harmon, C., & Walker, I., (1995). Estimates of the Economic Return to Schooling for the United Kingdom, *American Economic Review*, *85*(5):1278-1286

Harmon, C., Oosterbeek, H., & Walker, I.,(2003). The Returns to Education– Microeconomics, *Journal of Economic Surveys, 17*(2):115-155

Harris, R .S. (1988). General discussion on the stability of nutrients. In: *Nutritional Evaluation of Food Processing.* Edited by Karmas E, Harris RS. New York: Van Nostrand Reinhold Co; pp 3-6.

International Medical Corps (2011). SMART survey report.

Johnson, S. L., & Birch, L. L. (1994). Parents' and children's adiposity and eating style. *Pediatrics* 94, 635–661.

Johanna B. K. (2012). Malnutrition: *Risk factors, health effects and prevention*. Nutrition and Diet research progress. Nova Science Publishers. ISBN1621003515

Katz D. L., (2003). "Pandemic obesity and the contagion of nutritional nonsense". *Public Health Rev* 31 (1): 33–44. PMID 14656042

Kothari, C. R., (2004). *Research methodology: Methods and techniques* (2nd revised edition), New Age International (P Ltd.)

Krejcie, R. V., Morgan D. W. (1970) *"Determining Sample Size for Research Activities", Educational and Psychological Measurement.*

Laditan, A. A., 1983. Nutrition and physical growth in children Nigeria. *Journal on Nutrition Science*. 4: 5-10.

Lee, K., & Clydesdale, F.M., (1981). Effect of thermal processing on endogenous and added iron in canned spinach. *Journal on FoodScience*46: 1064-1067.

Lusty T., & Diskett P., (1984). Selective Feeding Programmes. ,*OXFAM Practical Guide* No. 1, OXFAM Health Unit.

Mariara, J., Mwabu, D., & Ndenge, G.,(2009). Determinants of Children's Nutritional Status in Kenya: Evidence from Demographic and Health Surveys, *Journal for African Economies, 18*(3):363-387

Marmot, M. G., & Wadsworth, M., (1997). "Foetal and Early Childhood Environment: Long-Term Health Implications," *British Medical Bulletin,* 1997, pp.53

Mugenda, O. M., & Mugenda, A. G., (2003). *Research methods: Quantative and qualitative approaches,* Olive M. Publication

Patrick, H., Nicklas, T., Hughes, S.O., Morales, M., (2005). The benefits of authoritative feeding style: Caregiver feeding styles and children's food consumption patterns. *Appetite Journal* 44(2):243-249.

Somogyi, J. C., (1990). Influence of food preparation on nutritional quality: introductory remarks. *Journal of Nutrition Science and Vitaminology* 36(suppll):SI-S6.

UNDP, 2003. Human Development Report 2003-Millennium Development Goals: A Compact among Nations to end Human Poverty. Oxford University Press.

UNHCR, 1992. Framework for People-Oriented Planning in Refugee Situations taking Account of Women, Men and Children;.

UNICEF, 1997. The Care Initiative: Assessment, Analysis and Action to Improve Care for Nutrition; UNICEF; New York.

UNICEF, 2009. National Guideline for Integrated Management of Acute Malnutrition; Division of Nutrition.

United Nations, 2011. The Millennium Development Goals Report 2011. New York.

United Nations Children's Fund (UNICEF), (1990). *Strategies of improving nutrition of children in developing countries,* New York, NY: UNICEF

Walia, B. N., & Gambhir, S. K,.(1975). The relationship between childhood malnutrition and maternal knowledge and beliefs regarding nutrition.*Indian Pediatric Journal*; 12: 563-68.

West, C. W., Eilander, A., & Lieshout, M., (2002). Consequences of revised estimates of carotenoid bio efficacy for dietary control of vitamin A deficiency in developing countries. *Journal on Nutrition*; 132(9 Suppl): 2920S–6S.

WFP/UNHCR, 1997. Joint WFP/UNHCR Guidelines for Estimating Food and Nutritional Needs in Emergencies.

WFP/UNHCR, 1997. Memorandum of Understanding on the Joint Working Arrangements for Refugee, Returnee and Internally Displaced Persons Feeding Operations.

World Health Organisation Working Group, 1986. "Use and Interpretation of anthropometric indicators of nutritional status." *Bulletin of the World Health Organisation*, Vol. 64, no. 6: 929-941.

World Health Organization World health report, 2005.*Make every mother and child count*. Geneva: World Health Organization; 2005. p. 219.

APPENDICES

APPENDIX I: LETTER OF TRANSMITTAL

LEAH WANGUI NG'AARI,

P.O BOX 47271-00100,

NAIROBI.

CELLPHONE NO.: 0724 739 244/0723 815 806

Email: leahwan504@gmail.com

3rd May 2013

TO WHOM IT MAY CONCERN

I am a student at the University of Nairobi, Department of Extra Mural studies undertaking a postgraduate degree in Project Planning and Management. I am going to carry a study as part of academic requirements of this course as required by the University rules.

The study is aimed at assessing the influence of parental involvement in feeding program on nutritional status of children aged below five years. The researcher seeks to determine the influence of parental attitude, culture, parental nutrition knowledge and food ration preparation on nutritional status of children. The data obtained in this study will be used to deliberate on the best way forward to improve the feeding program and consequently improve the nutritional status of the malnourished children. The information will also be used by policy makers in developing nutrition guidelines as far as management of malnutrition is concerned.

The respondents of this study will be the parents of the malnourished children. The researcher is going to use an interview guide whereby information regarding the feeding program will be obtained. The respondents are therefore assured of confidentiality on the information provided. All ethical issues will be observed.

Thanks in advance.

Yours faithfully

Leah W. Ng'aari

APPENDIX II: INTERVIEW GUIDE

Introduction

The researcher is carrying out a cross-section study to assess the influence of parental involvement in feeding program on nutritional status of children aged below five years in Isiolo district. Thereafter, the information obtained will be used in the planning of intervention programs that will help in improving the nutritional status of children below five years which is a key indicator of health outcomes. The researcher therefore assures the respondents of complete confidentiality and ethical consideration during the study period.

Date…… Code……

A. SOCIO-DEMOGRAPHIC INFORMATION.

1. Sex i) Male [ ] ii) Female [ ]

2. What is your age:
   i) Below 18 years [ ] ii) 18-30 years [ ] iii) 31-45years [ ] v) over 45 years [ ]

3. Please state your marital status:
   i) Married [ ] ii) Single [ ] iii) Divorced/Separated [ ] iv) Widowed [ ]

4. What is your religion:
   i) Christian [ ] ii)Muslim [ ] iii) Hindu [ ]
   iv) Other (Specify)……

5. What is the highest of level of education that you have attained?
   i) Primary [ ] ii) Secondary [ ] iii) College [ ] iv) Other (Specify)……

6. What do you do to earn your daily income?.....

7. What is the source of your drinking water?
   i) Tap [ ] ii) borehole [ ] iii) Protected well [ ] iv) Laga[ ] v) River [ ]
   vi) Others (Specify) ……..

8. What is the number of your household members?.....
9. What program is your child enrolled in?
   i) OTP [ ] ii) SFP [ ]

B. PARENTAL ATTITUDE TOWARDS FEEDING PROGRAM AND NUTRITIONAL STATUS

10. To what extent are you satisfied with the following statements concerning the feeding program?

	Very dissatisfied	Dissatisfied	Neutral	Satisfied	Very satisfied
Size of the food ration					
Feeding program improving nutritional status of your child					
Quality of service given by health workers during food ration collection					
Type of food ration given					
Palatability of the food ration					

11. For how long has your child be enrolled in the feeding program?.....
.....

C. CULTURE AND NUTRTIONAL STATUS

12. Are there foods that are prohibited by your community or religion among the children? i) Yes [ ] ii) No [ ]

    If yes which ones?.....

13. Do you have any feeding time restrictions in your community or religion among children?
    i) Yes [ ] ii) No [ ]

14. What is the staple food in your community?.....
    ……

15. At what age did you wean the child?.....
    ……

16. What kinds of foods did you use to wean your child?.....
    ……...

17. Are pregnant mothers restricted from intake of any type of foods?
    i) Yes [ ] ii) No [ ]
    If yes which ones?.....

D. PARENTAL NUTRITON KNOWLEDGE AND NUTRITIONAL STATUS

18. Where did you hear about nutrition among children first?
    i) I have never heard [ ] ii) at the hospital [ ] iii) From friends [ ] iv) others,
    specify……

19. In your own opinion what is a balanced diet or what does it contain?.....
    ……
    ……

20. Are you aware of the food contents contained in the food ration that is used in feeding programs?
    i) Yes [ ] ii) No [ ]

21. Have you ever had any nutrition counseling?
    i) Yes [ ] ii) No [ ]

22. Have you ever attended any nutrition education session?
    i) Yes [ ] ii) No [ ]

E. FOOD RATION PREPARATION AND NUTRITIONAL STATUS

a) For those parents with moderately malnourished children;

23. Highlight the steps you follow in preparing the porridge given at the health facility
    ……
    ……

24. How long do you take to cook the porridge?
    i) Less than 10 minutes [ ] ii) 10-30 minutes [ ] iii) Over 30 minutes [ ]

25. How often do you prepare the porridge?
    i) Daily [ ] ii) weekly [ ] iii) no specific time or day [ ]

b) For those parents with severely malnourished children

26. How often does your child take the nut based paste?
    i) Daily [ ] ii) No specific time [ ]

27. Does your child finish all the sachets prescribed by the doctor within the one week period?
    i) Yes [ ] ii) No [ ]

28. Who else takes the food ration in your household apart from the sick child?

APPENDIX III: KREJCIE AND MORGAN SAMPLING TABLES

N	S	N	S	N	S	N	S	N	S
10	10	100	80	280	162	800	260	2800	338
15	14	110	86	290	165	850	265	3000	341
20	19	120	92	300	169	900	269	3500	246
25	24	130	97	320	175	950	274	4000	351
30	28	140	103	340	181	1000	278	4500	351
35	32	150	108	360	186	1100	285	5000	357
40	36	160	113	380	181	1200	291	6000	361
45	40	180	118	400	196	1300	297	7000	364
50	44	190	123	420	201	1400	302	8000	367
55	48	200	127	440	205	1500	306	9000	368
60	52	210	132	460	210	1600	310	10000	373
65	56	220	136	480	214	1700	313	15000	375
70	59	230	140	500	217	1800	317	20000	377
75	63	240	144	550	225	1900	320	30000	379
80	66	250	148	600	234	2000	322	40000	380
85	70	260	152	650	242	2200	327	50000	381
90	73	270	155	700	248	2400	331	75000	382
95	76	270	159	750	256	2600	335	100000	384

Note: "N" is population size

"S" is sample size.